

Improving women owned SME's in Kudumbashree through introduction of Digital Fabrication Techniques

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Abstract

The purpose of this research is to identify how digital fabrication techniques could help in women entrepreneurship and empowerment in Kudumbashree, which is one of the largest women empowering project in the country launched by Government of Kerala, India in 1998. Literal meaning of Kudumbashree is prosperity (shree) of family (Kudumbam), a project which aims in wiping out absolute poverty from the state. At present, this empowerment program has touched nearly all the sectors from agriculture to training. In first phase, the research involves in identifying the areas where digital fabrication could create an impact in developing the women owned SME's. The project involves training the women mostly in their middle age with digital fabrication techniques. Final phase involves creating an enterprising model to help the women owned SME's.

Keywords

SME, MSME, Economic Empowerment, Kudumbashree, SSI, digital fabrication

1. Introduction

Kudumbashree, in its 18 years of existence has spawned a successful silent revolution. It has contributed a meaningful deviation in empowering the women of the state. Born as a poverty alleviation programme the collective has slowly grown to a self-reliant organization in making women coming out from their innards of the houses and donning the skillful role in steering the society to a meaningful change.

The project, credited for revolutionizing Kerala's rural economy in 90s, is involved in rural economy development, one of the core principles of Gandhian philosophy, which envisages every village being a self-sustained unit. It was launched in 1998 as a joint programme of the Kerala government and the National Bank for Agriculture & Rural Development to remove absolute poverty through concerted community action under the leadership of local self-government bodies. With over four million women members, today it is one of the largest women-empowerment projects in Asia, and covers over 50 per cent of Kerala households.

The Kudumbashree initiative is built around three critical components - micro-credit, entrepreneurship and empowerment, which is being implemented through community development societies. Kudumbashree plays a vital role in enhancing the financial status of the less privileged women in the State through its thrift and credit program. The small regular savings of neighborhood groups are pooled together and given out as internal loan to the most deserving member of the group. These loans acted as a leveler to address the immediate financial shocks of the group members.

It has succeeded in addressing the basic needs of less privileged women, thereby providing them a more dignified life and a better future. More than the figures, what is more

significant is the successful pattern of this livelihood mission by which thousands of families in the state could earn an income through these self-employment ventures.

This has proved as an effective tool of economic empowerment. Each of the micro enterprises, which are present in all the 14 districts of the state, produce the products which are exclusive to these districts. A model of producing locally to achieve self sufficiency scenario is already being reflected in the project.

Introducing digital fabrication tools and areas like Fablabs and maker spaces would open a whole new different level of development of products that are exclusive the area where the neighborhood groups reside. This paper brings together the findings on how Fab Labs and digital fabrication techniques could help in further development of women owned SME's and also help in reducing the skilled unemployment issues among women. Final phase involves creating an enterprising model to help the women owned SME's to achieve more by producing locally and in turn to make the community self sufficient.

2. A Broadview of SME's In India

Small and medium enterprises (SMEs) represent the largest proportion of the manufacturing sector in many countries & have played a key role in the economies of major industrial countries.

According to Union Ministry in India, 95 % of the industrial units are in small-scale sector with 40 % value addition in the manufacturing sector and 8 % contribution to Indian GDP. This sector is the second largest employer after agriculture (Report by IIA & MCCIA) and employs an estimated 59.7 million persons spread over 26.1 million enterprises. In terms of value, it is estimated that, MSMEs sector accounts for about 45% of the manufacturing output, which is 40% of the total export (www.msme.gov.in). India has all resources and skills, still lags far behind developed countries.

The major challenge for SMEs is to provide innovative and customized products using the best available process technologies. For business success, SMEs in all sectors need to develop effective strategies for providing higher added values to customers in terms of cost, quality and services at shortest possible time.

3. Challenges for SMEs in India

The SMEs in India, which constitute more than 90% of the total number of industrial enterprises, forms the backbone of industrial development. But most of the SMEs have limited regional geographic presence or limited customer base with majority of them supplying to a few customers. This not only limits their ability in negotiations and bargaining but also hampers their growth perspective based on the conditions experienced by their limited customers. Today, due to increased globalizations SMEs will need to compete with their counterparts from other parts of the world.

While Indian players have the cost advantages due to availability of cheap labor and government incentives for the sector, they will need to build their strengths on the technology front and management and marketing skills in order to survive in the global market. Lack of new skills and knowledge acquired as well as difficulty in accessing technology and maintaining competitiveness are the areas we need to look upon while approaching to strengthen the SME's.

Innovation has been found to be critical in creating and sustaining competitive advantage in the global markets (Rajiv Kumar & Doren Chadee 2002). This is an area where digital fabrication grounds like Fab Labs comes into picture, where new skills and knowledge regarding the current technological trends can be acquired. Fab labs can be most importantly used to develop machines or products that aid the SME's and bring the maximum possible outcomes in turn aiding development of innovative products of local as well as global importance.

4. Women owned SME's

Around 3.01 million women-owned enterprises represent about 10 percent of all MSMEs in the country. Collectively, they contribute 3.09 percent of industrial output and employ over 8 million people. Approximately 78 percent of women enterprises belong to the services sector. Women entrepreneurship is largely skewed towards smaller sized firms, as almost 98 percent of women-owned businesses are micro-enterprises.

Prevalence of women owned businesses	States/ Union territories (#)	State/ Union territories	State-wise Share (%) Number of combined Share(%)
High >10.00	4	Kerala, Karnataka, Tamil Nadu, WestBengal	51.9
Medium 5.00-10.00	2	Andra Pradesh, Madhya Pradesh	11.5
Low 2.00-4.00	7	Rajasthan, Maharashtra, Punjab, Uttar Pradesh, Bihar, Gujarat, Odisha	26.7
Very Low <1.99	20	Rest of India	9.9

**Table 1: Geographical distribution of women-owned MSMEs
Prevalence of women-owned businesses**

According to Table 1, In Small and Micro Enterprises census, four states including Karnataka, Kerala, Tamil Nadu and West Bengal, together has a 51.9% share in women-owned businesses.

Women entrepreneurs make a significant contribution to the Indian economy. Kerala has a distinction of always maintaining sex ratio in favor of women (census reports 1901 to 2011). Central and State governments are given much attention for integrating women into development process through various programmes.

Women status can be elevated only when they participate equally with men in the public world of work and they have economic control over production. Women participation in business has considered as a major indicator of gender development. The remarkable growth of women enterprises in Kerala is largely due to the implementation women Industries programme that offers various types of financial incentives offered to Small Scale Industry (SSI) units started by women.

5. The Community Based Organizational Structure of Kudumbashree

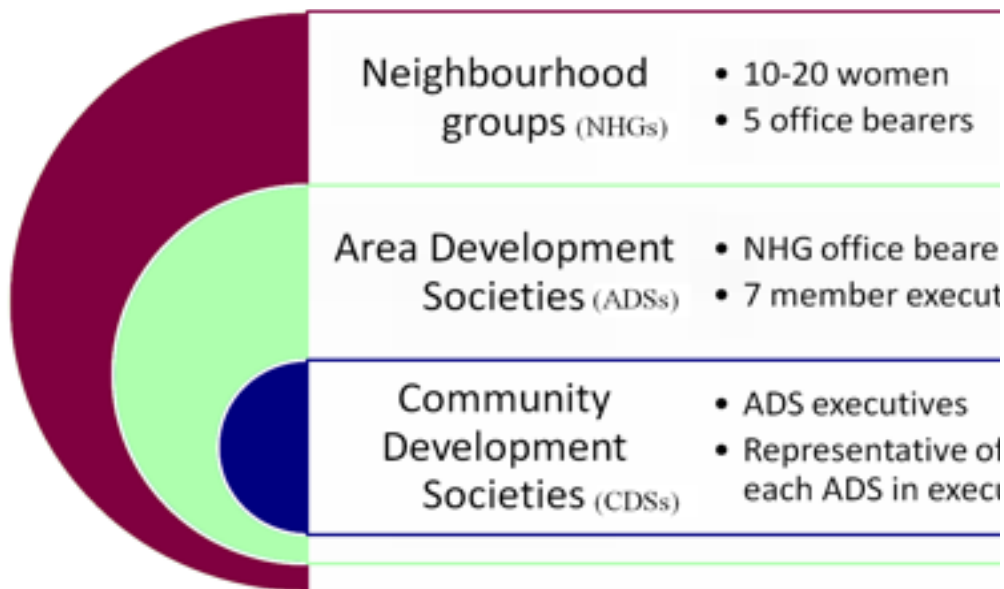
Kudumbashree developed an innovative methodology to identify the poor using non-economic parameters. The poor thus identified are organised under a well networked Community Based Organization(CBO). For effective convergence of the programme, a three tier CBO is in action. The structure focus on capacity building and system support for socio economic empowerment.

5.1 The Three-Tier Framework

The three-tier framework includes Neighborhood Group(NHG), Area Development Society(ADS) and Community Development Society(CDS).

NHG being the lowest tier comprise of neighborhood group with 10-20 women members from economically backward families. The second tier is the Area Development Society, which is formed at ward level by federating all the NHGs in the ward. The activities of the ADS are decided by the representatives of the women elected from various NHGs.

At the Panchayat / Municipal level a Community Development Society (CDS), a registered body under the Travancore-Cochin Literacy Scientific and Charitable Societies Act is



formed by federating all ADSs in the Panchayats.

Figure 1. Structure of Kudumbashree Community Organization

6. Micro Enterprises in Kudumbashree

Micro enterprise development is a means for economic empowerment by providing gainful employment to the people below poverty line and thereby improving their income and living standards.

Kudumbashree conducts a series of training programmes and also developed specific module for training potential micro entrepreneurs. Under the programme, micro enterprise development will start with low capital, low risk and low profit at the initial stage. It expects that these enterprises will switch on to low to medium capital and then to low to medium risk. In an advanced stage, some of these enterprises can reach medium capital and medium profit with appropriate technology and market.

Some of the thrust areas are:

- Food Processing
- Dairy Products
- IT
- Bio technology

Under these thrust sectors micro enterprises are set up. For instance, there are several

enterprises related to producing ethnic delicacies, tender coconut products, agriculture nurseries, soap making units, remedial education centers, paper bag making, integrated

coconut processing (Kerashree), tissue culture, yathrashree (chain hotels), courier services and direct marketing. According to the estimation made by Kudumbashree mission, 16,727 micro enterprises are formed in urban areas and 34,679 in rural areas in Kerala. These enterprises are operating in various fields. Lease land farming and vegetable cultivation are some of the income generation activities going on in full swing in rural Kerala.

A special employment programme was launched by the state government to provide employment opportunities to 50,000 educated youth in 2004-2005 was assigned to Kudumbashree which is known as *Yuvashree*. One of the main features of the 50K programme was to identify innovative areas to set up micro-enterprises for the youths from BPL families and to provide handholding and escort services to the new generation entrepreneurs. Both individual and group enterprises are supported under this. Moreover, exclusive female member groups; exclusive male groups and mixed groups are allowed under this scheme. A problem statement from the local area could be made to develop an idea for a product, which could be developed using fabrication techniques at the fab lab, hence solving real time problems.

7. Areas where impact can be brought

7.1 Collective Farming

Collective Farming is an initiative introduced by Kudumbashree to encourage cultivation by neighborhood groups. It not only brings in significant changes in the lives of the poor but also helps to increase agricultural production by bringing fallow and cultivable waste land into agricultural use, and has significance as a food security measure. Women enter the programme as cultivators as opposed to agricultural labour and control over the means of production and access to formal credit help in increasing the returns from farming.

Smart Farming being a concept widely encouraged, could be adopted at the farms where collective farming is done and there by increasing the productivity. The farms under the project are already producing organic vegetables adequate for the area through the conventional farming techniques but agriculture can be made more productive by solving problems such as water wastage. For this cheaper solutions can be implemented by manufacturing device to measure temperature, humidity and moisture at Fab Labs.

7.2 Machine Building for processes

Other than farming, an areas where digital fabrication could make difference is making machineries at fab lab for processes that could be automated. Such an area is Food Supplement Production and packaging. Usually the Women's self Help Groups consists of 10-20 women and affording heavy machineries or technologically advanced inventories would be difficult. Here comes the role of fab labs, where we can use the fab lab machines and digital prototyping tools can be used to develop machines tailored as per the need of the groups.

Fab labs could be used for automation of the present processes involved in food supplement production, thereby increasing the productivity of the self help groups.

Projects similar to cost effective solar poultry egg incubator developed by Mr. George Kutty, a local entrepreneur, could be developed at fab labs and such machines can work as a livelihood for women self help groups. Digital fabrication takes a whole new level with fab lab machines developing manufacturing machines that solve local problems and help to increase productivity.

8. Inter-Networking of Fab labs with self help groups

Exchange of project files of products designed in fab labs round the world would open new ways of finding livelihoods. Also, youth can find opportunities using the fab lab machines and come up with creative ideas that can be converted to products that can be made by decentralized production for local self sufficiency. In account for the growing youth population, India needs to create 150 million jobs in the next decade and such numbers can't be attained by corporations alone.

We need innovators and entrepreneurs to develop new products that solve real time problems. Inter-Networking of Fab labs also helps with the training of the women in self help groups to get acquainted to technological advancement and adopt digital manufacturing techniques to provide better outcomes, thereby generating jobs.

9. How Fab Lab comes into Picture

Fab Labs could source the SME's with the machines that could aid the groups in the process of manufacturing their products. The needs of each group would be different depending on various factors including the group size to raw materials being used. For example, for Kudumbashree units involved in food processing units, the machines that are used to process the food to seal the packing could be made at fab labs. This would be an area where fab lab 2.0 could be implemented to find livelihood and improve the quality of living. Other areas identified where digital fabrication and setting up of fab lab machines could make a difference in the women owned SME's are:

- **Smart Farming Technique:** A Fab-duino attached with sensors like moisture sensor could be made at fab labs to automate water irrigation. In Kudumbashree units, agriculture is one of the main sectors in which women work upon, finding solutions for the problems they face during cultivation such as pest control, water wastage that happens due to excess irrigation would be helpful for which we need to use fablab techniques.
- **Textile Industry:** Another industry where women work upon extensively is tailoring. Introducing fab products like Fab loom and lab tools such as digital sewing machines into the self help groups. Also, techniques such as screen printing can be introduced to the groups. The industries that make paper bags could customize their product according to customer requirements.

10. Future planning and Implementations

Fab labs become ground for community build up when the lab could create solutions to solve the grassroot level of problems. Open house sessions with the different notable self help groups should be conducted at labs to identify the areas where digital fabrication can make a difference in their small scale businesses. The problems identified could be put to a common platform from where students and wannabe entrepreneurs could take these out and work on them to create solutions at the fab lab and these could be delivered back to these groups. In this manner, employment opportunities are being created along with providing aid in social and economic empowerment of women owned SME's.

11. Conclusion

Kudumbashree activities has a role in interventions of Economic, Social and Women Empowerment. Through the successful pattern of this livelihood mission thousands of families in the state could earn a steady income through the self-employment ventures. Hence, proving it as an effective tool of economic empowerment. Fab labs are beneficial as an alternative to mass manufacturing and custom made solutions can be made to solve real time local problems. Introduction of fab lab and digital fabrication tools would open new grounds of technological advancement to the SME's. It is possible to manufacture nearly all items locally and the knowledge is what that is imported or exported through fab lab network.

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